
Printing and Plotting

8

Contents

About this Chapter	8-1
Key Terms in this Chapter	8-1
The Printing and Plotting Process	8-2
Selecting a Scale for Drawings	8-2
Composing a Drawing Layout	8-2
Selecting Text and Dimension Heights	8-3
Choosing Pens, Colors and Line weights	8-3
Steps to Plotting	8-3
Printers and Plotters	8-4
Pen Plotters	8-4
Ink-J et Printers/ Plotters	8-4
Laser Printers	8-4
Electrostatic Printers/ Plotters	8-4
AutoCAD , MicroStation and Cadkey Terms	8-4

Printing and Plotting

Note:

This condensed version of CADD PRIMER is intended to give you an overview of CADD. It includes only important topics from CADD PRIMER. It does not include any diagrams. CADD PRIMER includes more than 100 diagrams that illustrate the working of CADD. For complete understanding of CADD refer to CADD PRIMER. This complete book is available for download for \$9.95 at <http://www.caddprimer.com> or you can order printed copies through the publisher listed at the end of this chapter.

About this Chapter

This chapter introduces you to the printing and plotting process. It describes how the drawings are printed using a printer or a plotter. It looks at a number of issues associated with printing such as how to apply a scale to CADD drawings, how to select a sheet size and how big or small diagrams can be drawn, how to compose a drawing layout for plotting and what height text should be used based on a scale.

This chapter describes basic steps for plotting and how colors and line-weights are created in the drawings.

It also includes a discussion on common printing and plotting machines. You will learn about pen plotters, ink-jet printers/plotters, laser printers and electrostatic printers/plotters.

Key Terms in this Chapter

Term	Description
Configure	A process by which a program, such as CADD, is made to recognize and work with a hardware component, such as a plotter.
Dpi	Dots per inch; used to measure the accuracy of printing.
Line weight	Thickness of lines and other drawing objects.
Plot	To print a drawing with a plotter.
Plotting origin	An imaginary point on the screen that is used to align screen image with the paper in the plotter.

Term	Description
Plotting scale	To proportionally reduce or enlarge diagrams for plotting.
Plotting scale factor	A degree to which drawings are proportionally reduced or enlarged.

The Printing and Plotting Process

CADD drawings are printed using a printer or a plotter. The process of printing is as simple as selecting the print or plot function from the menu. This action sends data from the computer to a printer or plotter, which produces the final drawing. The drawings are neat, clean and, depending on the quality of the printer, highly accurate.

You can specify a number of parameters to control the size and the quality of a plot. You can plot a drawing to any size by applying an appropriate scale factor. You can specify line thickness and colors for different drawing objects. You can make a number of other adjustments as well, including rotating a plot, printing only selected areas of a drawing, or using specific fonts for text and dimensions. The following are the important considerations for plotting:

- Selecting a scale for drawings
- Composing a drawing layout
- Selecting text and dimension heights
- Choosing pens colors and line weights

Selecting a Scale for Drawings

When working on a drawing board, you use a specific scale to draw diagrams. For example, when you need to draw a plan of a building or a township, you reduce the size of the diagrams to 1/100 or 1/1000 of its actual size, that is, you use a 1:100 or 1:1000 scale. When you need to draw a small machine part, you draw it many times larger than its actual size. CADD uses the same principle to scale the drawings; however, a different approach is taken.

For details on this topic refer to CADD PRIMER.

Composing a Drawing Layout

CADD provides a number of special functions to compose a drawing layout. You can arrange diagrams on a sheet as you like and apply any scale factor. Different programs use different protocols to accomplish this task.

The following table shows some of the standard sheet sizes (in inches):

ANSI		ISO		Architectural	
Mark	Size	Mark	Size	Mark	Size
A	8.5x11	A4	8.3x11.7	A	9x12
B	11x17	A3	11.7x16.5	B	12x18
C	17x22	A2	16.5x23.4	C	18x24
D	22x34	A1	23.4x33.1	D	24x36
E	34x44	A0	33.1x46.8	E	36x48

For details on this topic refer to CADD PRIMER.

Selecting Text and Dimension Heights

As diagrams are enlarged or reduced by applying a scale factor, the size of text, dimensions, patterns and symbols is also changed. When you place different scale diagrams on the same sheet, you may get different sized text for each diagram. This is generally not acceptable for professional drawings. It is better to have consistently sized text on the drawings regardless of their scale.

For details on this topic refer to CADD PRIMER.

Choosing Pens, Colors and Line weights

CADD allows you to work with a variety of colors and line weights depending upon the plotter. In most CADD programs, the colors you use on-screen are configured with a specific line weight in the plotter. For example, the objects drawn with red color on-screen may be printed with .5mm line weight; the objects drawn with blue color may be printed with .2mm line weight. These are called pen assignments.

For details on this topic refer to CADD PRIMER.

Steps to Plotting

The following are the basic steps to plotting.

Step	Action
1	Set up the plotter according to the manufacturers specifications and configure it with your CADD program.
2	Place paper in the plotter and run a self test to ensure that the paper path is clear and the pens or cartridges are in good working condition.
3	Display the drawing to be plotted on the screen and choose the Plot function.
4	Respond to the specific prompts of your CADD program. In general, a CADD program will require the following information to plot the drawing: Plotting area: You can plot a part of the drawing or the entire drawing. You will be able to indicate the plotting area by indicating a window (an imaginary rectangle formed by two

diagonal points) or by selecting a specific view for plotting.

Plotting scale factor:

Enter a scale factor based on how big or small you want to print the drawing and the sheet size used. (See topic Selecting a Scale for Drawings.)

Plotting origin:

The plotting origin is a point that allows you to align the drawing shown on the screen with the paper in the plotter (see Fig. 8.2). You can place the diagrams on the paper anywhere by entering the exact coordinates of the plotting origin.

Important Tip:

Its always better to do a test plot of a small area of the drawing before sending all the drawings to plotter or printer.

Printers and Plotters

Printers and plotters are used to print CADD drawings. The drawings are generally printed at about 300-600 dpi (dots per inch) accuracy, which is considered quite high precision for engineering drawings. There are machines available that can print at 1200 dpi or higher accuracy as well.

The following are some examples of printers and plotters. Refer to CADD PRIMER for details on these topics.

Pen Plotters

Ink-Jet Printers/Plotters

Laser Printers

Electrostatic Printers/Plotters

AutoCAD , MicroStation and Cadkey Terms

Refer to CADD PRIMER for important print function terms used in leading CADD programs.

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